

WHAT IS CLAIMED IS:

1. A phase shift mask, comprising:
a substrate having an engraved portion
and a non-engraved portion, said engraved portion
5 having a side wall and a bottom face; and
a light blocking film provided in a
portion of the bottom face and the side wall of
said engraved portion,
wherein the size to be defined by
10 subtracting a thickness of the light blocking film
at the side wall from a width of said engraved
portion is equal to 1.3 to 2.4 times the width of
a light transmitting portion provided at said
engraved portion.

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2. A phase shift mask according to Claim 1,
wherein the size to be defined by subtracting a
thickness of the light blocking film at the side
wall from a width of said engraved portion is
20 equal to 1.4 to 1.8 times the width of a light
transmitting portion provided at said engraved
portion.

3. A phase shift mask according to Claim 1,
25 wherein the thickness of the light blocking film
provided at the side wall of said engraved portion
is equal to $1/20$ to $3/5$ times the width of the

light transmitting portion provided at said
engraved portion.

4. A phase shift mask according to Claim 2,
5 wherein the thickness of the light blocking film
provided at the side wall of said engraved portion
is equal to $7/20$ to $11/20$ times the width of the
light transmitting portion provided at said
engraved portion.

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5. A phase shift mask according to Claim 1,
wherein the width of said engraved portion is
equal to 2.5 times or more the width of the light
transmitting portion provided at said engraved
15 portion.

6. A phase shift mask according to Claim 1,
wherein a depth of said engraved portion is
determined so that a phase difference,
20 corresponding to a product of 180 deg. by an odd
number, is produced between light from the light
transmitting portion of said engraved portion and
light from said non-engraved portion.

25 7. A phase shift mask according to Claim 1,
wherein the light transmitting portion provided at
said engraved portion and a light transmitting

portion defined at said non-engraved portion have a line-like shape.

8. An exposure method, comprising the
5 steps of:

preparing a phase shift mask;
illuminating the phase shift mask; and
projecting a pattern of the phase shift
mask onto a substrate,

10 wherein the phase shift mask includes
(i) a substrate having an engraved portion and a non-engraved portion, the engraved portion having a side wall and a bottom face, and (ii) a light blocking film provided in a portion of the bottom
15 face and the side wall of the engraved portion, wherein the size to be defined by subtracting a thickness of the light blocking film at the side wall from a width of the engraved portion is equal to 1.3 to 2.4 times the width of a light
20 transmitting portion provided at the engraved portion.

9. A device manufacturing method,
comprising the steps of:
25 preparing a phase shift mask;
illuminating the phase shift mask;
projecting a pattern of the phase shift

mask onto a substrate; and

developing the substrate,

wherein the phase shift mask includes

(i) a substrate having an engraved portion and a
5 non-engraved portion, the engraved portion having
a side wall and a bottom face, and (ii) a light
blocking film provided in a portion of the bottom
face and the side wall of the engraved portion,
wherein the size to be defined by subtracting a
10 thickness of the light blocking film at the side
wall from a width of the engraved portion is equal
to 1.3 to 2.4 times the width of a light
transmitting portion provided at the engraved
portion.